



Growing BC's Technology Industry: A 4-Point Plan for Growth

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Introduction

Technology has become a transformative force in the BC economy. Spanning the complementary sectors of digital media, life sciences, wireless, information and communications technology and cleantech, the BC technology industry is integral to virtually every sector and is essential in our province's future economic prosperity and competitiveness.

British Columbia is well positioned to capitalize on the importance of the technology trend, with a wealth of talent, a diverse base of companies, world-class universities and experienced entrepreneurs capable of building and growing globally competitive companies.

In the British Columbia Technology Report Card 2014, KPMG assessed the performance of the tech industry in BC in comparison to other industry sectors and to peer regions in other jurisdictions. The data clearly shows that BC's technology sector continues to outperform other sectors in the province, growing substantially in GDP, industry revenues, and wages. There have been a healthy number of new companies formed, as well as an increase in the number growing number of mid-sized companies. Specifically:

- **84,000 employees** - more than forestry, mining, oil & gas combined
- **3rd fastest private sector job creator** over the previous decade
- **3rd largest contributor to GDP** – at \$15.5 B
- **\$23 Billion in revenue** – annual growth rate of 6.7% which is triple that of BC's overall growth
- **\$6.3 Billion in wages** – with jobs earning 66% more than BC average

At the same time, BC has room to improve, particularly when compared to its tech sector peers in other jurisdictions. BC was ninth among Canadian provinces in productivity gains since 1985¹ – in large part attributable to the lower levels of investments in technology and machinery. Moreover, BC's tech sector is proportionately smaller in terms of the share of GDP, investments in R&D and employment when compared with other jurisdictions in Canada and the US.

BC trails significantly many US states as well as the US average in terms of the share of the technology industry of the economy as a whole². The technology sector in BC accounts for a much smaller proportion (7.6%) of overall provincial GDP than does the technology industry in the US as a whole (10.3% of GDP). Simply closing this gap between BC's performance and the US performance (i.e. 10.3% of GDP versus 7.6%) would yield substantial economic gains in BC:

- Additional \$9 to \$10 Billion in GDP
- Additional 65,000 to 74,000 jobs
- Additional \$4.1 to 4.6 Billion in wages

The BC technology industry has grown an average of 6.1 percent per year since 2001. If the industry were to continue to grow at this rate, by 2020, the industry would grow to \$35 billion in revenue, employing 111,000 workers and contributing 8% of GDP. In other words, it would be a sizeable industry, growing at more than twice the rate of the province overall.

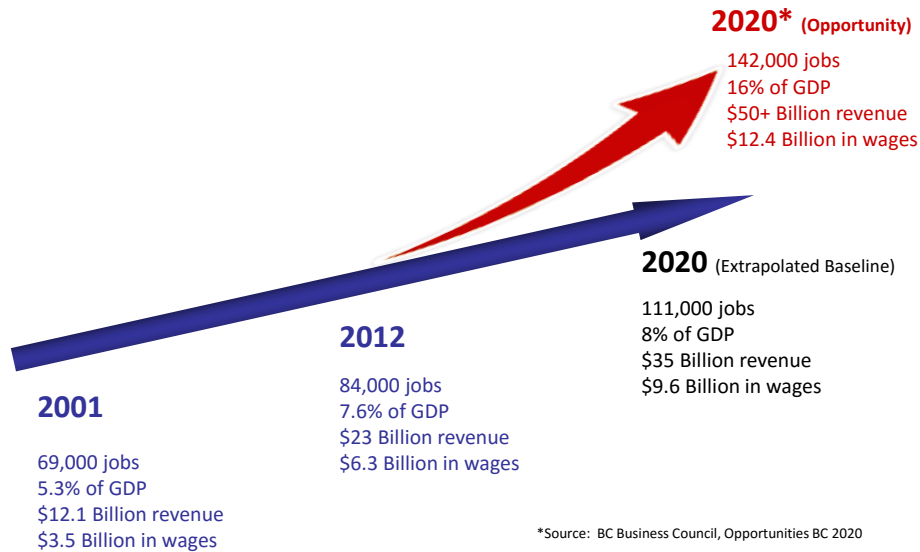
The opportunity, however, is much bigger than our traditional growth rate. As an \$9 trillion market globally, and growing at 7.4 percent per year, BC stands to realize a much more significant share of the technology market – provided that it takes decisive and deliberate action in fostering

¹ CD Howe Institute, 2011 http://www.cdhowe.org/pdf/Commentary_331.pdf

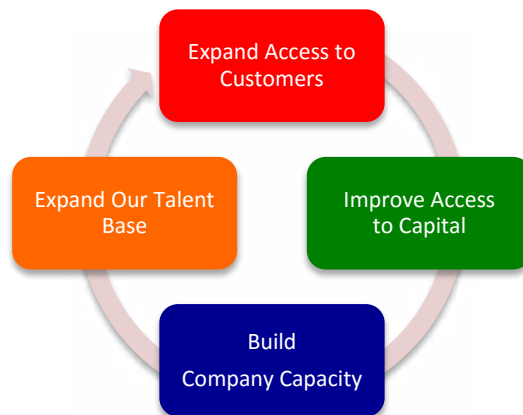
² Page 48, KPMG British Columbia Technology Report Card 2014

the growth of the industry. It's an opportunity that offers the unique combination of fast-paced growth, the creation of clean, knowledge-based jobs and significant export opportunities based on the creative and innovation resources indigenous to British Columbia.

The chart below shows the extrapolation of the BC Tech sector based on historical growth rates and the opportunity based on accelerated growth rates exemplified by the global market. With an intentional policy framework and an injection of focused, strategic investments, the growth potential for BC's tech industry could exceed \$50 billion in revenue, employ 142,000 workers and account for over \$12 billion in wages by 2020, as outlined in the [BC Business Council Opportunities BC 2020 report](#) on the Advanced Technology Sector.



In order to lift the growth curve and accelerate our competitive capabilities, four key priority areas must first be addressed: improving access to capital; expanding our talent base; expanding access to customers and building company capacity.



Over the past ten years, the government has created a strong foundation for technology and innovation in BC through programs such as the provincial Scientific Research and Experimental Development (SR&ED) tax credit program, Venture Capital Corporation (VCC), Eligible Business Corporation (EBC) and the BC Renaissance Capital Fund (BCRCF). Additionally, the industry has benefited from a competitive tax environment (personal and corporate), and strategic investments in cleantech and bioenergy through the ICE Fund and BC Bioenergy Network.

We believe that continued strategic investments in the growth and sustainability of the technology industry will continue to yield more companies, create more stable high-paying jobs, and a heightened level of economic prosperity for British Columbia.

This paper discusses a **4-Point Plan for Growth** – a policy framework that can elevate the rate of growth for technology in BC and address the key issues of Improving Access to Capital, Expanding our Talent Base, Expanding Access to Customers and Building Company Capacity.

BC's Technology Industry: A 4-Point Plan for Growth

1. Revitalize venture capital in BC

- Invest \$100 million to revitalize venture capital in BC
- Increase and enhance BC's Small Business Venture Capital Program

2. Invest in Talent Attraction and Training

- Acceleration of foreign worker approvals through the Provincial Nominee Program
- Establish an Expert Panel to study and make recommendations on increasing graduation rates from post-secondary science/technology programs
- Expand BC Training Tax Credit program to include Co-op and Internship placements
- Support industry in the delivery of strategic talent attraction and retention initiatives

3. Leverage procurement to foster a Home Team Advantage for BC tech companies

- Leverage federal IRB program to support BC technology companies
- Institute Pre-commercial Technology Adoption Program (similar to the federal BCIP program)
- Introduce Set-Asides in procurement for SMEs across government, agencies and crown corporations

4. Invest in Building Company Capacity

- Support industry accelerator programs delivering measurable results through real company growth and the creation of new jobs.

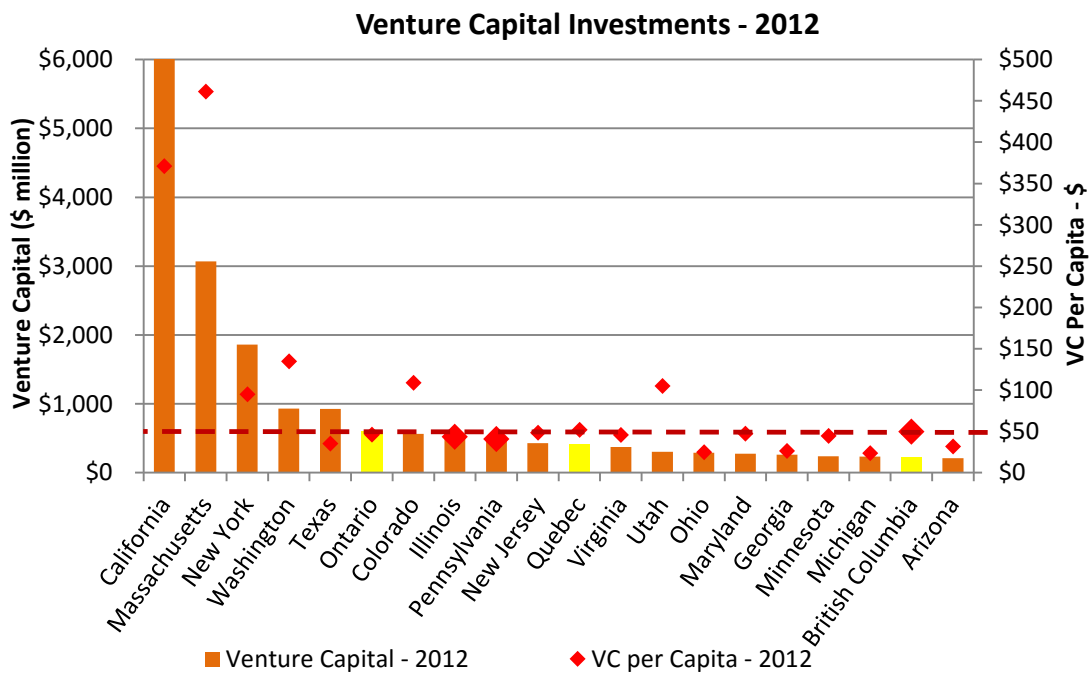
1. Revitalize Venture Capital in BC

Background

A healthy and robust venture capital ecosystem is critical in realizing the growth potential of BC's tech sector. The early stage part of the venture capital ecosystem in British Columbia is currently in jeopardy. Fixing it will require a long term view that recognizes both the opportunity and the essential role that the technology industry plays in contributing to the province's future economic growth.

Venture capital plays a critical role in providing the investment and resources needed for high-potential small and medium-sized business to grow. Many of British Columbia's leading technology companies – such as Westport, Sierra Wireless, Avigilon, Hootsuite, D-Wave and BuildDirect - benefitted from venture capital investments at key stages of their growth. A growing number of incubators and accelerators and growing interest in technology entrepreneurship are giving rise to an increasing number of technology startups which can become the next crop of leading companies.

As reported in KPMG's British Columbia Technology Report Card 2014, BC placed second to last in the level of total venture capital invested among the 20 North American jurisdictions examined.



Data Source: KPMG Analysis of Thomson Reuters Data

The capital crisis has affected companies of all sizes in BC, but has had particular impact on early stage technology companies where access to capital is essential to sustaining the business. The federal SR&ED program along with the provincial SR&ED tax credit plays a critical role in allowing companies to leverage their comparatively lower levels of investment and increase their hiring by 40% or more.

For early stage companies to reach their full potential, British Columbia requires a strong, sustainable venture capital industry to support these young businesses, so that they can grow into globally competitive firms, anchored in British Columbia, that drive job-creation, innovation and economic growth.

The issue today is that there is a gap in funding sources for these companies. While the BC Angel Tax Credit Program (EBC/VCC) has been instrumental in supporting these startups with seed stage capital, subsequent financing, at the first stage where venture capital is typically involved, is lacking. This “first VC stage” gap has been created by the increased number of startup firms together with a sharp decline in the number of venture capital funds based in Vancouver.

The early stage venture capital environment in British Columbia has deteriorated in recent years. There has been a 60% decline in the number of BC-based venture capital firms and a 50% decline in the amount of capital invested in early stage companies. The declining health of the venture capital ecosystem in BC will strand many promising BC technology companies due to the lack of capital necessary to grow.

Several factors are directly contributing to this issue in British Columbia.

1. **Growing Number of Companies Seeking Capital.** Robust startup activity combined with growing levels of support from accelerators/incubators is leading to increasing numbers of early stage companies seeking investment capital.
2. **Growth in Angel/Seed Investment.** In response to the rapid pace of new company creation in BC, capital raising at the seed and angel investment stage has been very strong in recent years. The success of the Angel Tax Credit program in BC has created pressure on subsequent stages of capital in the ecosystem, particularly early stage venture capital.

Growing Gap in First Round (Series A) Venture Capital. Against the backdrop of increasing demand for venture capital, there has been a steady decline in the number of BC-based venture capital funds and correspondingly, the capacity of venture capital in BC invest in deals.

3. **Local Venture Capital is an essential catalyst for attracting Foreign Capital.** Historically, local venture capital invests in five times the number deals as their foreign venture capital counterparts. Moreover, BC-based venture capital firms have demonstrated 3 to 5 times leverage from foreign investors on their investments that they lead.
4. **Shift in venture capital investments towards later stage.** As the remaining venture capital funds in BC reach the end of their respective investment periods, there has been a marked shift towards later stage investments and away from new, early-stage investments.

All of these factors point to a looming gap in early stage venture capital financing that will significantly impact the growth and opportunity for BC’s technology sector in the next few years.

Recommendations

In order to revitalize and ensure a sustainable, scalable and local early-stage venture capital ecosystem, the BCTIA recommends:

- a. Investing \$100 million to revitalize venture capital in BC.
- b. Increasing and enhancing BC's Small Business Venture Capital Program

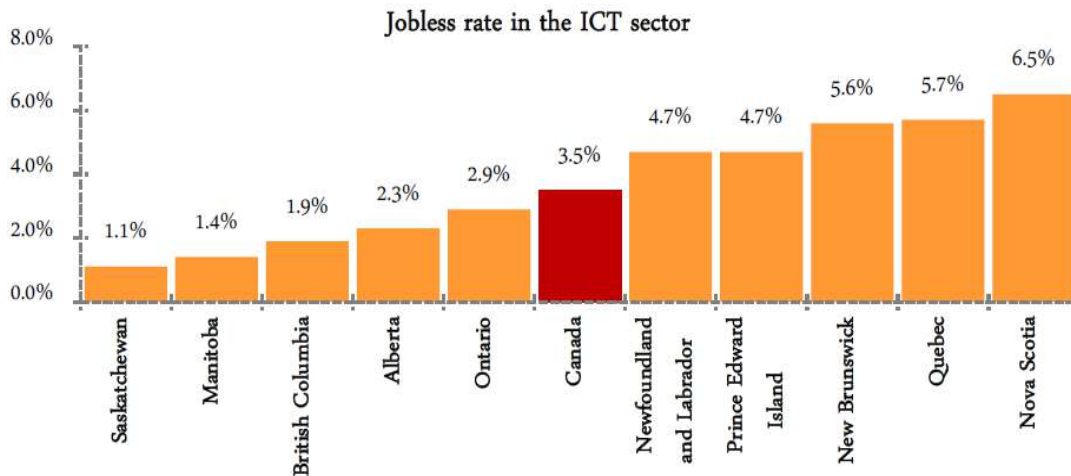
- a. **Invest \$100 million to revitalize venture capital in BC.** This would consist of a commitment from British Columbia in partnership with the Federal Government to invest \$100 million towards the establishment of a Regional Fund of Funds, as part of the federal Venture Capital Action Plan (VCAP) program within the next 12 months. This \$100 million investment would be leveraged with private investment with the goal to realize a \$300 million Regional Fund of Funds.
- b. **Increase and enhance BC's Small Business Venture Capital program.**
 - I. Increase the Small Business Venture Capital (SBVCA) program to \$50 million in 2015/2016. This would allow angel investors as well as retail Venture Capital Corporations (VCCs) to make larger investments, thereby filling a near term funding gap that is hampering the growth of early-stage tech companies.
 - II. Extend the BC Angel Investment tax credit program to a national program to allow for more inter-provincial capital flows, freeing private capital from the sidelines and ultimately allowing companies to raise larger pools of capital.
 - III. Eliminate the annual contribution limits of \$200,000 per individual investor; extend the tax carry forward period for corporate investor's from 5 to 10 years; and increase the maximum EBC credit for a company from \$5 million to \$10 million.

2. Invest in Talent Attraction and Training

Background

The BCTIA 2012 TechTalentBC Labour Study identified talent attraction and retention as among the top issues constraining the growth of tech companies in the province. With a labour force of over 84,000 workers, the technology industry is at peak levels of employment and forecasting shortages in labour supply over the next several years.

In the most recent ICTC report on labour trends in the Information Communications Technology (ICT) industry, job growth in BC continues to outpace other regions of the country. The jobless rate in BC's ICT sector has dropped to 1.9%, almost half the level of Canada overall. In other words, the tech industry is near full employment.



Source: ICTC, 2012

BC's tech industry will continue to suffer from a constrained supply of labour. There are proportionately fewer graduates in BC with science/technology degrees and there is growing demand for skilled workers across all job categories. Net migration into the province (through immigration and intra-provincial migration) has helped to some extent, but the shortfalls are expected to widen in future years. The problem extends beyond the staff levels and well into management positions where there continues to be a shortage of experienced management and executives who have successfully grown small entrepreneurial endeavours into significant global enterprises.

Recommendations

In partnership with industry, we believe government should increase its investment in talent attraction, retention and training to address the forecasted labour and skills shortages in the coming years.

Specifically, we recommend:

- a. Acceleration of foreign worker approvals through the Provincial Nominee Program
- b. Establishing an Expert Panel to study and make recommendations on Increasing the graduation rates of post-secondary science/technology programs
- c. Expand BC Training Tax Credit program to include Co-op and Internship Placements
- d. Support industry in the delivery of strategic talent attraction and retention initiatives

a. Acceleration of foreign worker approvals through the Provincial Nominee Program

The Provincial Nominee Program (PNP) facilitates an expedited immigration process for certain categories of applicants including skilled workers. BC's current PNP program has a stated processing time of 4-6 weeks.

For companies who regularly make use of the PNP program, we recommend that the government introduce a "frequent flyer" program that would facilitate an accelerated pathway and further shorten processing times.

b. Establish an Expert Panel to study and make recommendations on increasing graduation rates of post-secondary science/technology programs

BC is well behind the Canadian average in undergraduate and graduate degrees per capita in engineering and sciences.³ KPMG estimates that BC's rate of doctoral degrees is about one-half that of Canada, placing it in the bottom quartile of OECD jurisdictions.

We recommend the government establish an Expert Panel to study and make recommendations on the necessary capacity in post-secondary science/technology programs to address critical talent shortages.

c. Expand BC Training Tax Credit program to include Co-op and Internship Placements

In BC, co-op is an underutilized tool as many small companies find the cost to recruit, train and support co-op placements to be prohibitive. Although BC already offers co-op programs across 23 post-secondary institutions with over 10,000 co-op placements annually, the University of Waterloo alone reports over 16,000 co-op placements annually. Many provinces across Canada have supported the growth of co-op placements through tax credit programs to encourage small businesses to participate.

We recommend the government expand the BC Training Tax Credit program to include co-op and internship placements to provide the necessary incentives to small technology companies.

d. Support Industry in the delivery of Strategic Talent Attraction Initiatives

In a recent study of labour trends in the technology industry, the BCTIA 2012 TechTalentBC⁴ study forecasts growth to over 100,000 workers by 2016, representing annual growth of up to 4,000 new jobs for the next several years. ICTC⁵ reported that of the top 14 core technology occupations, twelve categories will experience shortages over the next three years.

We encourage the government to work with BCTIA to address the skilled talent shortage by investing in industry-led programs and activities focused the attraction of local, national, and international talent.

³ [KPMG British Columbia Technology Report Card 2014](#)

⁴ <http://www.bctia.org/Resources/eLibrary/TechTalentBC/TechTalentBC-Labour-Study-2012>

⁵ http://www.ictc-ctic.ca/wp-content/uploads/2012/06/ICTC_IEP_SA_BC_EN_03-12.pdf

3. Leverage Procurement to Foster Home Team Advantage

Background

Small companies typically lack the scale and capability to successfully access foreign markets and customers abroad. Supporting the growth of these small companies requires a more deliberate focus on fostering a “home team advantage” by encouraging businesses and government in BC to be among the first to adopt the innovations of BC technology companies.

Propagating a home team advantage is essential to igniting the growth of early stage technology companies. It ensures a close proximity to early customers that is essential in garnering feedback and improvements to product design. It also offers the benefit of strong, local reference customers that are essential when approaching new customer and market opportunities abroad.

A recent report by the Expert Panel on Federal R&D indicated that the use of government procurement to stimulate innovation and technology adoption has been a long-standing practice in many jurisdictions, particularly in the US.⁶

The US government has for many years ensured that small businesses receive a share of the work for the federal government. The federal Small Business Act of 1953 states that small businesses should receive a "fair proportion" of federal contracts and that small businesses and small minority-owned businesses should have the "maximum practical opportunity" to participate in federal contracting.

The US Small Business Innovation and Research Program (SBIR) was instituted nearly 30 years ago with a mandate to require federal agencies that contract more than \$100 million annually in R&D to set aside 2.5 percent of its budgets for small businesses. This includes large agencies such as the Department of Defense, Department of Energy and National Institutes of Health and translates into \$2 to 3 billion in annual expenditures.

Other countries have adopted similar procurement programs. In 2010, the UK government set a goal of 25 percent of procurement going to SMEs including improved access for ICT procurement. Sweden, the Netherlands, Finland, Japan and the Republic of Korea, have also adopted SBIR-type programs.

Government procurement (including departments, agencies and crown corporations) represents a significant opportunity to further a home team advantage for small technology companies.

Recommendations

Properly leveraged, there are specific opportunities that can further the Home Team Advantage for small technology companies:

- a. Leverage federal IRB program to support BC technology companies
- b. Institute Pre-commercial Technology Adoption Program
- c. Introduce Set-Asides for SMEs in government procurement

⁶ Expert Panel on Federal R&D Special Report on Procurement http://www.canadainternational.gc.ca/sell2usgov-vendreagouvusa/procurement-marches/barriers_other-obstacles_autres.aspx?lang=eng&view=d

a. Leverage the federal IRB program to incent foreign suppliers to support SMEs in BC

The Industrial and Regional Benefits (IRB) policy was designed to ensure that Canadian industries benefit from government defence and security procurement. This policy requires that any company that wins a defence or security contract must undertake business activities in Canada that match the value of the contract. Over the past several years, the Canada First Defence Strategy has created a broad array of new opportunities for Canadian technology companies and organizations.

The distribution of IRB work throughout Canada has so far favoured companies in Eastern Canada with only a limited number of IRB contracts being awarded to BC companies. Quebec has received the greatest benefits from IRB-related investment followed by Ontario. The Atlantic Provinces have also received a disproportionate share of IRB-related investments particularly given their relatively small population base.

We recommend the Government work with industry to seek a larger share of IRB-related investments, creating a broader foundation of support for BC's technology industry as a whole.

b. Institute Pre-commercial Technology Adoption Program

In 2012, the Government of Canada introduced the Build in Canada Innovation Program (BCIP) to provide support for commercialization of Canadian technology. The BCIP program is designed as a competitive first purchase program to support smaller Canadian companies that have innovative, pre-commercial products or services with the potential to improve the efficiency and effectiveness of the government.

We recommend the introduction of a technology adoption program in British Columbia, with government taking a lead role in serving as credible validator of made-in-BC innovations.

c. Introduce Set-Asides for SMEs in government procurement

The BC government and the federal government both recognize the importance of small business as an economic segment and a source of job creation. However, the current policies for supporting SMEs do not currently include set-asides in government procurement for small and medium sized technology companies.

We encourage the government to establish a Set-Aside program (similar to the US SBIR program) for SMEs applicable for small scale technology procurements by government, agencies and crown corporations. The Set-Aside program would remain a competitive process among eligible SMEs and would allow small technology companies to participate in "fair proportion" of opportunities in British Columbia.

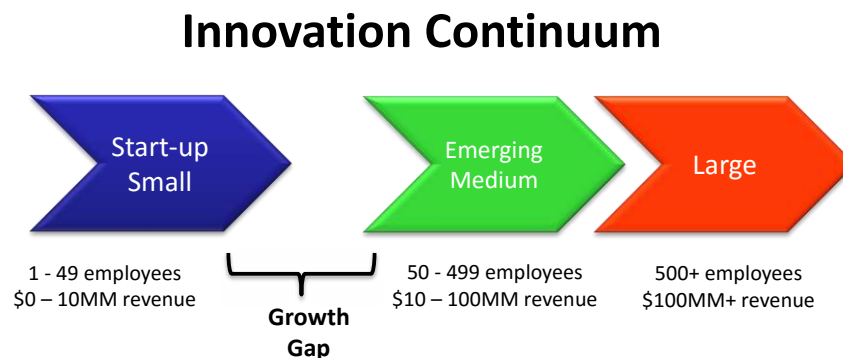
4. Invest in Company Capacity Building

Background

Organic growth and start-up success are the lifeblood of a vibrant, sustainable tech sector, but currently the vast majority of BC tech companies employ fewer than 50 people. Given the degree to which medium and large firms new companies create more jobs, attract larger investments, create new spin-offs and elevates the ecosystem, it is fundamentally important to employ a strategy that grows small companies into medium and large anchor companies.

Today, only 4 per cent of all BC technology companies have greater than 50 employees. The majority of firms are small or very small with nearly 70 percent employing fewer than 4 people.

This **Growth Gap**, characterized by the challenges in growing small companies into medium-sized companies, creates a significant imbalance in the Innovation Continuum and represents a fundamental scaling issue for the industry as a whole.



With only 4 % of companies categorized as mid-sized, BCs technology industry lacks a 'middle class'

Successfully growing more small companies into medium-sized companies is essential to the long term competitiveness of the sector. Medium-sized companies form a pool from which large anchor companies will emerge and support an ecosystem comprised of re-investable net income, growth financing and development of skilled talent – all essential elements in building a vibrant industry.

In September 2010, acting on the recommendations and goals set out in the BC Opportunities 2020 - Advanced Technology paper, the BCTIA launched Centre4Growth, a program to address the Growth Gap and Build Company Capacity by delivering direct support to high-potential technology entrepreneurs and companies. Centre4Growth focuses on expanding the core capabilities of the company, with a focus on go-to-market activities that drive growth in revenue, exports, investment, and employment.

The four-year results, speak to the success of Centre4Growth. Over 400 companies have received more than 11,500 hours of mentoring and coaching. Collectively, they have grown revenue by more than 42%, garnering \$106.2MM in new revenue and investment while adding over 450 new full-time jobs. Centre4Growth companies experience 3-5 times faster growth than working independently – making a real impact on the growth of companies.

Recommendations

Stimulating significant job creation and market expansion requires a long term view and commitment by our governments and industry.

We recommend the Government continue to provide support to industry accelerator programs delivering measurable results through real company growth and the creation of new jobs.

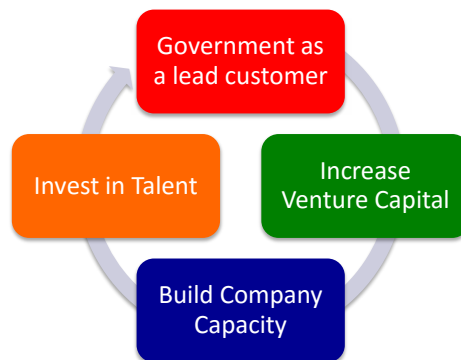
Conclusion

With strategic actions that build capacity in our small tech companies, reinforce our capital ecosystem, invest in talent attraction and development and improve access to customers, our province will be well positioned to realize the benefits of a fast growing global technology sector.

The size of the prize is significant. The BC tech industry has the potential to exceed \$50 billion in revenue, employ 142,000 workers and account for over \$12 billion in wages by 2020.

Acting on this 4-Point plan will be critical to accelerating the growth of the industry, solidifying our competitive position, creating more high-paying jobs and propelling a thriving economy over the next decade.

4-Point Plan for Growth



1. Double the level of venture capital investments in BC
2. Invest in Talent Attraction and Training
3. Leverage procurement to foster Home Team Advantage
4. Invest in building company capacity

Acknowledgements

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